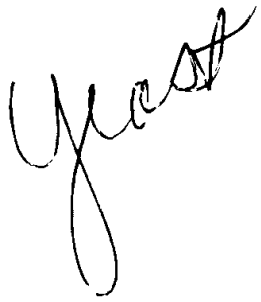
DOCUMENT-IDENTIFIER: US 5624835 A
TITLE: Endo-.beta.-1,4-glucanase and a DNA sequence

DEPR:
Total RNA was isolated from approximately 7 g of mycelium. The mycelium was frozen in liquid nitrogen and ground in a mortar with 1 g of quartz sand to a consistency of flour. The RNA was extracted with guanidinium thiocyanate and centrifuged through CsCl essentially as described in Sambrook et al., 1989, op. cit.. Poly A RNA was isolated from total RNA by chromatrography on oligo dT cellulose.

DEPR:
This acid extraction has several disadvantages: water pollution, corrosion, filtering problems due to desintegration of the plant cell walls, partial break down of the wanted pectin polymers (the degree of polymerisation is one of the most important parameters of a commercial pectin). Thus, it is obvious, that an extraction of pectins with enzymes, which do not decompose native pectin polymers would be of great advantage.



DOCUMENT-IDENTIFIER: US 6147206 A
TITLE: Isolation of hemicellulose from corn fiber

BSPR:
Hemicelluloses are generally defined as polymers that are solubilized from plant cell walls by alkali (Darvill et al. 1980. Pages 91-140, in: The Biochemistry of Plants. P. K. Stumpf and E. E. Conn, eds. Academic Press, New York), and those from corn fiber are typically composed of D-xylose (48-54%), L-arabinose (33-35%), galactose (5-11%), and D-glucuronic acid (3-6%) (Whistler and BeMiller (1956) J. Am. Chem. Soc. vol. 78, pp. 1163-1165; Sugawara, et al. (1994) Starch/Staerke. vol. 46, pp. 335-337; Saulnier, et al. (1995a) Carbohydr. Polym. vol. 26, pp. 279-287; Saulnier, et al. (1995b) Carbohydr. Res. vol. 272, pp. 241-253). Most of the fraction is soluble in water after alkaline extraction. Their isolation is actually a two-stage process, involving alkaline hydrolysis of ester linkages to liberate them from the lignocellulosic matrix, followed by extraction into aqueous media. It is thus expected that corn fiber gum is cross-linked to other cell wall components for several reasons. Both ferulic acid and p-coumaric acid are esterified to cell wall polysaccharides in various grasses (Mueller-Harvey et al. 1986. Carbohydr. Res. vol. 148, pp. 71-85). Partial acid (Yoshida, et al. (1990) Agric. Biol. Chem. vol. 54, pp. 1319-1321) and enzymatic (Ohta et al. (1994) J. Agric. Food Chem. vol. 42, pp. 653-656) hydrolysis of corn fiber gum yields oligosaccharide fragments in which arabinosyl units are esterified at primary hydroxyl groups with ferulic acid. Some were esterified with diferulic acid (Saulnier, et al. supra) and acetyl esters were also identified on the arabinoxylan (Saulnier, et al. (1995a), supra). In addition, there is evidence to suggest that esterified ferulic and p-coumaric acids serve to couple lignin and polysaccharide (Helm and Ralph (1993) Carbohydr. Res. vol. 240, pp. 23-38) and that polyphenolics (including lignin) can form alkali-resistant linkages with the hemicellulose fraction of the matrix polysaccharides (Morrison, I. M. (1974) Biochem J. vol. 139, pp. 197-204; Fincher and Stone. (1986) pp. 207-295 In: Adv. Cereal Sci. Technol. VIII. Am. Assoc. Cereal Chem.: St. Paul, Minn.). Ether linkages are present in lignin, and there is evidence that ether linkages are also involved in linking lignin to hemicelluloses (Watanabe et al. (1989) Agric. Biol. Chem. vol. 53, pp. 2233-2252; Hatfield, R. D. (1991) Pages 285-313 In: Forage Cell Wall Structure and Digestibility. Jung et al., eds. ASA-CSSA-SSSA: Madison, Wis.). As a result, most previous preparations of corn fiber gum samples probably contained remnants of lignin, contributing to off-colored products. Protein was also possibly present since stable linkages between hemicellulose and protein in corn bran (Saulnier, et al. (1995a), supra) and rye bran (Ebringerova, et al. (1994) Carbohydr. Res. vol. 264, pp. 97-109) have been identified.